$\mathbb{C}$	3	2	2	6	5

(Pages: 3)

Name	400
Reg. No	

## FIRST SEMESTER M.B.A. DEGREE EXAMINATION, DECEMBER 2017

(CUCSS)

### BUS 1C 07—QUANTITATIVE TECHNIQUES

(2016 Admissions)

Time: Three Hours

Maximum: 36 Weightage

#### Part A

Answer all the questions.

Each question carries 1 weightage.

- What is inferential analysis?
- 2. What are non-parametric tests?
- 3. Distinguish between correlation and regression.
- 4. Explain random variable and random experiment.
- 5. Explain one-tailed test and two-tailed test in testing hypothesis.
- 6. What is coefficient of determination?

 $(6 \times 1 = 6 \text{ weightage})$ 

#### Part B

Answer any four questions.

Each question carries 3 weightage.

- 7. What is normal distribution? Explain the properties of a normal distribution.
- 8. A company uses a 'selling aptitude test' in the selection of salesmen. Past experience has shown that only 70% of all persons applying for a sales position achieved a classification "dissatisfactory" in actual selling, whereas the remainder were classified as "satisfactory", 85% had scored a passing grade on the aptitude test. Only 25% of those classified unsatisfactory, had passed the test on the basis of this information. What is the probability, that a candidate would be a satisfactory salesman given that he passed the aptitude test?
- 9. Explain with illustrations the concept of point estimation and interval estimation.
- 10. How to create a variable in SPSS? Explain the procedure for entering data into SPSS.

Turn over

11. Calculate Karl Pearson's co-efficient of correlation from the following data and interpret its value:

,				2	4	5
Roll No. of students	:	1	2	J	•	
*		48	35	17	23	47
Marks in accountancy	•			40	25	45
Marks in Statistics	· :	45	20	40 .	,	

12. On the basis of following information compute:

(a)  $r_{23.1}$ .

(b)  $r_{13.2}$ .

(c) r<sub>12.3</sub>.

$$r_{12} = 0.70$$
;  $r_{13} = 0.61$ ;  $r_{23} = 0.4$ .

 $(4 \times 3 = 12 \text{ weightage})$ 

#### Part C

# Answer any three questions. Each question carries 4 weightage.

- 13. What is SPSS? How does it help the researchers in carrying out the analysis?
- 14. Distinguish between Binomial, Poisson and Normal distributions.
- 15. The following data relate to the scores obtained by 9 salesmen of a company in an intelligence test and their weekly sales in thousand rupees:

Sales intelligence	<i>:</i>	A	В	C	D	$\mathbf{E}$	$\mathbf{F}$	G	H	Ι
Total scores	: ,	50	60	50	60	80	50	80	40	70
Weekly sales	•	30	60	40	50	60	30	70	50	60

- (a) Obtain the regression equation of sales on intelligence test scores of the salesman.
- (b) If the intelligence test score of a salesman is 65, what would be his expected weekly sales.
- 16. Hinton Press hypothesizes that the average life of its largest web press is 14,500 hours. They know that the standard deviation of press life is 2100 hours. From a sample of 25 presses, the company finds a sample mean of 13,000 hours. At a 0.01 significance level, should the company conclude that the average life of the presses is less than the hypothesized 14,500 hours?

17. A brand manager is concerned that her brand's share may be unevenly distributed throughout the country. In a survey in which the country was divided into four geographical regions, a random sampling of 100 consumers in each region was surveyed, with the following results:

		Total			
	NE	NW	SE	sw	
Purchase the brand	40	55	45	50	190
Do not purchase	60	45	55	50	210
Total	100	100	100	100	400

- (a) Develop a table of observed and expected frequencies for this problem.
- (b) Calculate the sample  $\chi^2$  Value.
- (c) State the null and alternative hypotheses.
- (d) At  $\alpha = 0.05$ , test whether brand share is the same across the four regions.

 $(3 \times 4 = 12 \text{ weightage})$ 

Part D

Answer the compulsory question.

6 weightage.

18. A tea company appoints four sales men A, B, C and D and observes their sales in three seasons-summer, winter and monsoon. The figures (in lakhs) are given in the following table:

Season		Season's			
	A	В	C	D	Total
Summer	36	36	21	35	128
Winter	28	29	31	32	120
Monsoon	26	28	29	29	112
Salesmen's Totals	90	93	81	96	360

- (a) Do the salesmen significantly differ in the performance?
- (b) Is there significant difference between the seasons?

(6 weightage)